NOTES ON THE VICTORIAN CHLAMYDOPSINI (COLEOPTERA), WITH DESCRIPTIONS OF NEW SPECIES.

BY CHARLES OKE.

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THE minute beetles known as the Chlamydopsini have received various treatment at the hands of systematists. Westwood,* in 1869, proposed the genus Chlamydopsis for two species taken in Western Australia by the late F. H. Du Boulay, and King,† the same year, proposed the name Bizenia for a congeneric species from New South Wales; but, as Westwood's paper was issued first, his name has priority. Lewis,‡ in 1903, formed the genus Orectoscelis for a species taken in Queensland by F. P. Dodd, and transferred one of Westwood's species to it. Lea,§ in 1914, proposed Ectatommiphila and Pheidoliphila as two new genera at the expense of Chlamydopsis, putting two species in the former and five in the latter. Mjöberg ‖ proposed the genus Eucurtia for a specimen of *C. comata*, Blackb., a synonymy noted by Lea. Bickhardt, in Wytsman's "Genera Insectorum," treated these genera as forming the tribe Chlamydopsini, and, though he mentions Lea's genus Pheidoliphila (in litt.), he makes no reference to Ectatommiphila, but gives Eucurtia as a valid genus. Several of the species have been given a wrong habitat in Bickhardt's list.

Of the thirty-four described species belonging to this group, fifteen have been recorded for Victoria, and I now add six new species.

The following are the species known to occur in Victoria, the localities where they have been taken, and the ants they have been found associated with. All types, and a specimen of each species marked with an asterisk, have been deposited in the National Museum, Melbourne.

FAMILY HISTERIDÆ.

SUB-FAMILY HÆTERINÆ.

TRIBE CHLAMYDOPSINI.

* *Chlamydopsis pygidialis*, Blackb.

Described from a specimen taken while beating dead leaves at Fernshaw, Victoria. It has also been taken at Beaconsfield (F. E. Wilson), Ferntree Gully (Oke, W. Du Boulay, J. E.

* Westwood, Trans. Ent. Soc., London, 1869, p. 317.
† King, Trans. Ent. Soc., N.S.W., 1869.
‡ Lewis, Ann. Mag. Nat. Hist., vol. xii. (7), p. 426 (1903).
§ Lea, Pro. Roy. Soc., Vict., vol. xxvi. (1914).
‖ Mjoberg, Ent. Tidskrift, p. 121 (1912).

Dixon, F. E. Wilson), Belgrave, Healesville, Warburton, Yarra Junction, Emerald, Pakenham (Oke), always associating with a small black species of Chalcoponera. Length, 3.12 mm.

* Var. *minor* (n. var.)

A variety of this species occurs which is much smaller and more parallel than the usual form, and the edentations on the humeral angles are less distinct. Length, 2.4 mm. Hab., Victoria: Belgrave, Ferntree Gully (Oke), Beaconsfield (F. E. Wilson), in nests of Chalcoponera, sp.

* *Chlamydopsis formicicola*, King.

Described by Rev. King as *Bizonia formicicola* from specimens obtained at Liverpool, N.S.W., and has been taken in Victoria at Sea Lake (J. C. Goudie) and Bendigo (Oke).

* *Chlamydopsis epipleuralis*, Lea.

Described from specimens taken at Hornsby, N.S.W., in which State it appears to be a common species. The only Victorian specimens I have seen were taken near Whittlesea (Oke), in nest of *Iridomyrmex gracilis*, Lowne.

* *Chlamydopsis longipes*, Lea.

Described from specimens taken at Bannockburn, Victoria, by Mr. H. W. Davey, and has been recorded from South Australia. New localities:—Melton (Oke, W. Du Boulay), Bacchus Marsh (Oke), in nests of *Chalcoponera metallica*, Sm.

* *Chlamydopsis excavata*, Lea.

Described as from near Hobart, Tasmania. It has been taken in National Park, N.S.W. (W. Du Boulay, F. E. Wilson), and is now recorded from Victoria—Beaconsfield (F. E. Wilson), Belgrave, and Ferntree Gully (Oke), in nests of Chalcoponera, sp. ?

Chlamydopsis tuberculata, Lea.

Described from three specimens obtained at Ararat by Mr. H. W. Davey. It has since been taken at Lorne (F. E. Wilson), Grampians (E. Fischer), Macedon (Oke), in nests of *Iridomyrmex rufoniger*, Lowne. Both Mr. Wilson and Mr. Fischer have placed a specimen of this species in the National Museum collection.

Chlamydopsis ectalommæ, Lea.

Described from Sydney, N.S.W., now recorded from Victoria for the first time; Bacchus Marsh (Oke), in a nest of *Chalcoponera metallica*, Sm.; (?) Lakes' Entrance (F. E. Wilson).

* Var. *rufomaculatus*, n. var.

A variety of this species occurs, with the greater portion of the elytra a bright reddish-castaneous, thorax and appendages much darker, tip of elytra and body almost black. The lateral margins from apical quarter parallel, not "gently incurved to

middle." Length, 2.16 mm. (type); another specimen, 1.72 mm. Hab., Victoria: Melton, Bacchus Marsh (Oke), in nests of *Chalcoponera metallica*, Sm. This may be the variety mentioned by Lea (*Rec. S.A. Mus.*, vol. i.), but I think it is so distinctive in colouring that it should be named. The colour is, apparently, not due to immaturity, as I have kept a specimen alive for three weeks, during which time the colour did not darken, though it did after the specimens were mounted some months.

* *Chlamydopsis striatipennis*, Lea.

Described from a single specimen obtained at Lorne by Mr. F. E. Wilson. Other records are Whittlesea (C. Oke, Nov., 1908), Warburton, Ferntree Gully (C. Oke, F. E. Wilson), Belgrave, Emerald (C. Oke), in nests of Chalcoponera, sp.?, and a small black Iridomyrmex.

* *Chlamydopsis carinicollis*, Lea.

Described from a single specimen obtained at Beaconsfield by Mr. F. E. Wilson in nest of *Aphænogaster longiceps*. I have taken several specimens in nests of Chalcoponera, sp. ?, at Ferntree Gully and Upwey. This species varies greatly in size, ranging from 1.72 to 2.32 mm.

Chlamydopsis satipennis, n. sp.

Dark chestnut brown, in parts lighter, almost reddish; fascicles and setæ pale golden yellow. Head immersed in thorax when at rest, somewhat rounded, widest in front, gently narrowing to base, finely shagreened, with a few moderate punctures; face with large shallow reticulate punctures; eyes distinctly faceted. Antennæ moderately long; scape curved, its apical half thickened, in front with punctures as on face, behind finely shagreened; funicle short, seven-jointed, basal joint large, subcylindrical, second joint very fine at base, then increasing in thickness to club, which is long, subcylindrical, gently pointed. Prothorax distinctly transverse; front margin slightly elevated, and straight across median half, thence more elevated, at an oblique angle, to sides, then in a straight line to base; the lateral elevation gradually diminishes in height till it ceases at base; disc with dense reticulate punctures, and finely granulated. Elytra slightly longer than wide, a little wider than prothorax, with well-raised epaulettes, crowned by a large golden-yellow fascicle; basal depression rather small, but deep, with an impression running under the epaulettes and opening on the sides, on the epipleuræ (from this opening coarse striæ radiate in all directions); there is also an opening in front and behind epaulettes; the striæ in depression transverse behind scutellar region, then curving outward and down elytra; a large depression near hind angles. Pygidium with a

transverse row of sharp teeth. Under surface in parts with dense reticulate punctures, and short setæ; metasternum with a narrow median carina. Legs long; tibiæ compressed, thin, and angular, narow at base, fairly wide at apex, widest at end of tarsal groove, where the flange is cut off at an acute angle. Length, 2.16 mm.

Hab., Victoria: Ferntree Gully, Belgrave, Sassafras, Evelyn (C. Oke), in nests of *Notoncus forcli*, Andre, var. *dentatus*, Forel.*

This remarkable little beetle is literally covered with setiferous granules, being most apparent around margin of pronotum and elytra, on pygidium and propygidium; but if held on a plane with the eye, and looked at from in front or sides, they will be seen in all directions. Some specimens have the pronotum roughened, and some small nodules on disc, but this is generally absent.

At a casual glance this species somewhat resembles *serricollis*, Lea, but is very distinct by, *inter alia*, margins of thorax, clothing, and striæ of elytra. In Mr. Lea's tabulation of the genus it would be associated with *ectatommæ*, Lea, because of its transverse scutellar striæ; but *ectatommæ* has a very small fascicle, and not the clothing of the present species; the tibiæ are also differently shaped.

Chlamydopsis leai, sp. nov.

Very dark brown, in parts black, with distinct bronzy reflections, legs reddish-brown. Head immersed in thorax when at rest, rounded, with a few fine punctures; face slightly concave, with large, shallow, reticulate punctures; eyes very finely granulated. Antennæ long; scape long, basal half very narrow, then suddenly widened—in front with punctures, as on face, behind finely shagreened; funicle distinctly seven-jointed, first joint rather long and thick, second thin, then gradually increasing in thickness to club, which is thick, rather short, and sharply pointed. Prothorax strongly transverse, disc convex, with a short obtuse tubercle and dense reticulate punctures, and with short yellow setæ; frontal margin well elevated and slightly recurved; this central piece is not quite width of head (here there is a distinct break in margin); then a piece starts in front of but near ends of this central piece, and runs at an oblique angle to the sides, where it is unusually high, and forms a sharp point, then rapidly diminishes away; hind angles slightly rounded off; a narrow marginal line at base. Elytra subquadrate, narrowed at base, then suddenly widened; hind angles widely rounded off; epaulettes highly elevated, with sculpture as on pronotum; large sub-basal depression, its

* I am indebted to Mr. J. Clark, of Western Australia, for the identification of this ant.

sides vaulted, where there are some stiff yellowish hairs; depression highly polished, but with minute, hardly perceptible, setiferous punctures; a deep transverse impression near base, not opening on sides, but this is indicated by a small, shallow fovæ, towards which the striæ are directed; outside the depression the elytra are striated; a large fovæ at hind angles; near apices a few coarse setæ. Prosternum in front and sides with reticulate punctures, almost becoming transverse striæ in centre, between coxæ and mesosternum coarsely punctured. Metasternum and most of abdomen finely and sparsely punctured. Pygidium and propygidium sub-opaque, with reticulate punctures and conspicuous setæ. Legs long; tibiæ slightly angular, outside edge curved, tarsal groove on inside flat surface. Length, 3.5 mm.

Hab., Victoria: Ferntree Gully, Belgrave (C. Oke), July and December, in nests of Iridomyrmex,* sp.?

This strongly-striated species somewhat resembles *striatipennis*, Lea, but may be easily separated from that species by, *inter alia*, the shape of the thorax, base of elytra, the clothing, and the striæ are coarser. In Mr. Lea's table it would be associated with *striatella*, Westw., from which it differs, *inter alia*, in the shape of the epaulettes and legs, and the puncturation of the under surface.

I have much pleasure in naming this species after Mr. A. M. Lea, who has done so much good work amongst the myrmecophilous coleoptera of Australia. The type is probably a female, the antennæ being as figured by Mr. Lea for *latipes*. I have a specimen from Sassafras, unfortunately damaged, which is probably the male. It is slightly smaller, and the antennal club is longer, thinner, and slightly curved. Length, 2.56 mm.

Chlamydopsis puncticollis, n. sp.

Black, or almost so; epaulettes, antennæ, and legs reddish-castaneous. Head immersed in thorax when at rest; face slightly concave, with rather large, clearly defined punctures. Antennæ fairly long; scape narrow at base, inflated near apex, with punctures, as on face; funicle short, first joint thick, second thin, then increasing in width to apex; club long, curved, subcylindrical. Prothorax strongly transverse, medio-basal two-thirds convex; front margin faintly bilobed, lightly elevated across width of head, then more elevated, with a strong inward curve to lateral margin, which is slightly sinuate, and not elevated beyond apical third, with coarse, dense punctures. Elytra subquadrate, with a rather deep transverse depression near base, reaching the sides, but towards each side concealed

* An undetermined species, which Mr. J. Clark thinks is probably undescribed.

by a raised humeral process, meeting a subhumeral process, bearing on their apex a golden-red fascicle attached to a membrane; in depression highly polished; beyond depression with well-defined striolæ, reaching, but becoming shorter near, apex. Prosternum and mesosternum, sides of abdomen, pygidium and propygidium with large reticulate punctures. Metasternum with an impressed longitudinal line. First joint of abdomen with a row of small punctures around basal margin. Legs fairly long; tibiæ strongly inflated, inflated parts rather suddenly cut off at termination of tarsal groove. Length, 2.28 mm.

Hab., Victoria: Ferntree Gully (C. Oke), from nests of Chalcoponera.

This species is perhaps nearer to *striatella*, Westw., than any other described species, but is easily separated from that species by (*inter alia*) pronotum glabrous and different subhumeral structure. From *atra*, Lea, it differs in the coarser and deeper puncturation of pronotum, smaller humeral processes, no ridge on scutellar region, and striæ not becoming punctures at apex of elytra.

The punctures on the pronotum of the present species are coarse and deep, and somewhat elongated in a line with the body.

Chlamydopsis strigicollis, n. sp.

Black; antennæ and legs reddish-castaneous. Head immersed in thorax when at rest; face with dense reticulate punctures. Antennæ rather long; scape thin at base, widened towards apex, with punctures as on face; funicle short, apparently six-jointed; club long, curved, subcylindrical. Prothorax transverse, convex, with short confluent striolæ and rather long pale setæ; front margin lightly elevated, straight, then more elevated and slightly curved to side, thence elevated to base. Elytra subquadrate, with a transverse sub-basal depression continued to sides, but hidden near the sides by raised humeral and subhumeral processes, nearly meeting, and crowned with a golden fascicle; near scutellar region is a raised ridge directed caudad; highly polished within the depression, beyond with fine but sharply-defined striæ to apex and sides; with very short pale setæ, except on humeral angles and scutellar region, where it is long. Epipleuræ with striæ converging on opening of depression. Prosternum and mesosternum, sides of abdomen, pygidium and propygidium with sparse, large, shallow punctures. Legs moderately long; tibiæ strongly inflated; inflated parts suddenly ending on front pair, leaving a sharp angulation, middle pair similar, but not so sharply angular, hind pair much less angular. Length, 2 mm.

Hab., Victoria: Hurst's Bridge, Belgrave, Ferntree Gully (C.

Oke), Beaconsfield (F. E. Wilson), Mooroolbark (E. Fischer), in nests of Chalcoponera, sp.

The sculpture of the pronotum is peculiar and distinctive. In the centre front there are a few punctures (almost round); then the striolæ are curved and run around the convex portion, on top of which they are transverse, and on the sides they run straight up and down. The clothing of the pronotum is more pronounced than on any other species known to me.

This species somewhat resembles *atra*, Lea, in the shape of the elytral depression and the legs, but differs in the clothing, sculpture of pronotum, and the striæ being continuous to apex of elytra. *Striatella*, Westw., is described as having "minute setigerous punctures" on pronotum, a description that would hardly fit the present species, and the epaulettes and sculpture of under surface are not as in Westwood's figure.

Chlamydopsis sculptus, n. sp.

Chestnut-brown, in parts infuscated. Head immersed in thorax when at rest; face slightly concave, with fine, close, distinct punctures. Antennæ fairly long; scape narrowed at base, rather suddenly widened from about middle, with punctures as on face; funicle stout, apparently six-jointed, thickened to apex; club rather short and thick. Prothorax strongly transverse, with fine, close punctures; disc gently convex, front margin well elevated in a sinuous line, a little wider than head, then slightly more elevated, at an acute angle to sides; lateral margins almost parallel, and feebly elevated. Elytra slightly wider than long, a little wider than thorax, with a large sub-basal depression; opening out on the upper edge of the epipleuræ, the striæ of which are directed towards it; ends of depression with a golden fascicle; a feeble, transverse, elevated ridge on each side of scutellum closely punctured; each shoulder raised, with a few large punctures, and an impressed line running from angle of thorax to lateral extension of depression, and separating it from rest of elytra, between this line and depression, a raised process ending in a sharp tooth overhanging lateral extension of depression, and almost meeting a similar process on the other side; on their inner edges a dark, pubescent membrane; elytra beyond scutellar region with some punctures, then with rather fine confluent striolæ not quite reaching apex, and numerous golden setæ. Under surface finely shagreened, and with sparse, fine punctures; an impressed line on metasternum. Legs long; tibiæ strongly inflated, the inflated parts acutely angular. Length, 2 to 2.88 mm.

Hab., Victoria: Sea Lake (J. C. Goudie), Bendigo (J. E. Dixon and C. Oke), Macedon (C. Oke), Daylesford (F. E. Wilson),

Ballarat (W. Du Boulay). South Australia: Mount Lofty (F. E. Wilson), in nests of Iridomyrmex.

This species has passed as *epipleuralis*, Lea, but the puncturation of the prothorax, &c., is certainly distinct, and the front angles of that segment, when viewed directly from above, are more acutely cut off.

Numerous specimens were obtained at Bendigo, and were all of a very pale colour when alive, though they have darkened since mounted, and were of a uniform size—2 mm. Specimens from other parts were all darker, and varied considerably in size.

Orectoscelis bifoveacollis, n. sp.

Light castaneous, abdomen darker, legs and antennæ almost flavous, subnitid; clothed with minute pale setæ, nowhere thick, but closest around scutellar region. Head immersed in thorax when at rest; face with large shallow punctures. Antennæ rather short and thick; scape narrow at base, somewhat suddenly inflated near middle, with punctures as on face; funicle apparently six-jointed, first joint long and thick, second short and thin, then gradually thickening to apex; club short and thick. Prothorax slightly wider (at base) than length down centre, much narrowed to apex; convex, with rather large punctures, becoming strigose at sides; front margin bisinuate across head, then strongly elevated, at an oblique angle, to sides, where it is suddenly cut off; outside this the lateral margin is raised and reflexed to about basal third, where there is a fairly large, deep fovæ. Elytra subquadrate, with a transverse sub-basal depression, opening above, and on the epipleuræ; the striæ of the latter in convex curves, the opening filled with a bright golden fascicle; in excavation smooth, beyond with feeble, indistinct aurolets, becoming more defined at sides. Pygidium with rather large, feeble aurolets. Under surface shagreened, with a few faint punctures on anterior half of metasternum, which has a faintly-impressed line down its posterior half. Legs moderately long; all the tibiæ distinctly flanged, the flanges increasing in width from apex to near base, and then more or less obliquely cut off; the flanges deeply grooved for the reception of the tarsi. Length, 1.85 mm.

Hab., Victoria: Natya (C. Oke), near nests of *Euponera lutea* and a small black Iridomyrmex, under log. Type unique.

The fovæ on the pronotum is a distinctive character of this species, no species being described as having them. They are round, and impressed obliquely into the pronotum, with the opening directed forward. When fresh there appeared to be traces of a small pubescent membrane within the fovæ, but this is not discernible now.

I refer this species with some slight doubt to Orectoscelis, but, as the prosternum is not distinctly keeled as in other species, and the mesosternum not bisinuate anteriorly—merely a narrow segment, as figured by Westwood for his *duboulai*—it seems better placed here than in Chlamydopsis. The base of the pronotum in *bifoveicollis* is as in *O. humeralis*, Lewis, though the sides of depression and legs are similar to *duboulai*, the legs being slightly more angular.

* *Ectatommiphila opaca*, Lea.

Described from New South Wales, and has been taken in Queensland; it is now recorded frm Victoria—Geelong district (H. W. Davey), You Yangs (C. Oke). Victorian specimens are slightly larger, and with the pubescent membranes more distinct than in specimens from New South Wales. In nests of *Chalcoponera metallica*, Sm.

Ectatommiphila glabra, Lea.

Two specimens of this species are recorded—one, the type, from the Blue Mountains, in New South Wales; the other from Mount Tambourine, in Queensland. I have a specimen from Beconsfield which I took off a stump, where it had evidently just alighted, as the wings were protruding around elytra, which is almost certainly this species. Not being too confident that my beetle really was this species, I submitted it to Mr. A. M. Lea, who very kindly sent the following notes:—"Ectatommiphila.—Seems var., or possibly other sex, of *glabra*, of which I have but the type; differs in being about one-fourth larger, and with a golden, transverse, split membrane on each side of elytra in the sub-basal depression. . . On the type of *glabra* the split membranes are much less conspicuous and not at all golden; the punctures, general shape, hind parts, and legs are absolutely the same." A second specimen of this species was taken from a pool of water at Lakes' Entrance by Dr. F. Burnet. Length, 5.1 mm.

Pheidoliphila carbo, Lea.

Described from a single specimen taken at Sea Lake by Mr. J. C. Goudie. Still unique. In nest of Pheidole, sp. ?

Pheidoliphila granulata, Lea.

Described from a single specimen taken in Geelong district by Mr. H. W. Davey. Still unique. In nest of Pheidole, sp. ?.

* *Pheidoliphila pseudocephala*, Lea.

Described from a single specimen taken at Latrobe, Tasmania, by Mr. A. M. Lea, it is now recorded from the mainland for the first time, having been taken in Anglesea district (C. Oke) and Terang (F. Burnet).

I am indebted to Mr. A. M. Lea for confirming my identification of this species.

* *Pheidoliphila minuta*, Lea.

Described from a single specimen taken at Ferntree Gully by the late Mr. F. Spry. It occurs freely in nests of Pheidole, sp. ?, at Ferntree Gully, Belgrave, Emerald, Evelyn, Warburton, and Healesville.

Bionomics.

The Chlamydopsini, one of the most interesting groups of beetles in Australia, are all inquilines of ants, though one, *C. comata*, has been found in a termites' nest. Little or nothing is known regarding their relations with their hosts. Judged by the structure of the body and legs, and the complete way in which they "shut up"—that is, the retraction of the head within the thorax and the legs within grooves on the sides of the body—they appear to be of the offensive type of inquiline. On the other hand, the possession by a number of the species of well-developed fascicles of hairs within or on sides of elytral depression, and which are, no doubt, connected with secretory glands, makes one think that perhaps they give off something that the ants are fond of, and so make them welcome guests.

Neither the larvæ or pupæ have been found, so nothing about their breeding is known, and I am not aware of any notes regarding their habits having been published.

On turning over the stone or log covering the nest, the ants will be seen running in all directions, and, with the exception of the species of Iridomyrmex, they gradually quieten down, and practically all retire down the galleries. *Iridomyrmex gracilis* and *I. rufoniger*, however, swarm out and overrun everything around the nests. The ants, as a rule, take no notice of the beetle, whether it is still, moving slowly, or running across the nest—not even if it is among their larvæ and pupæ. The ants, in running around, often collide with the beetle; generally they run around or pass over it without taking any notice. Occasionally an ant will pause and give the beetle a rather close scrutiny, and then move on. On two occasions, at Bendigo, I have seen the little Iridomyrmex pick up *C. sculptus* and carry them off, and hide them behind little stones in the galleries; and three times I have seen the Notoncus pick up *C. setipennis* and run off into the galleries with them. The ant in each case caught hold of the beetles by inserting their mandibles into the lateral opening of the elytral depression. This may have been by accident, but was probably not. After dropping the beetles, all five ants spent some time cleaning (?) their mouths with front legs and antennæ. Unfortunately, it was impossible to say, from their expressions, whether they

were pleased or disgusted. I have several times seen the Pheidole that *P. minuta* lives with pick them up and run away with them, but have not been able to definitely see how they were picked up; but the beetle is held half sideways, and I think it is held by the cleft shoulder.

The beetles behave variously; thus, *C. pygidialis* may be found either sitting or running about in the galleries, around edges of the nest, among the *débris*, or, where the nest is vaulted, on sides or top of vault, or even on the covering stone, and this applies, apparently, to all the species. Generally they are found "shut up" in the nest, but in a few minutes they will start and make a run for one of the entrances to the underground nest, though once I watched *pygidialis* for an hour, and *longipes* for over half an hour, without any apparent movement. When alarmed they all "shut up" tightly and retract their legs into the grooves on their bodies; but if *longipes* be tickled lightly, with finger or bit of grass, they put their long hind legs up in the air at an angle of about forty-five degrees. As they are the only species that do this, and also the only one (so far described) that have an apical spur on the hind tibiæ, I have thought that perhaps they secure a hold on the covering stone to resist the ants from dragging them along. If their structure is really to withstand attacks from the ants, it seems strange that the largest and strongest species of the typical genus, Chlamydopsis, known to me cohabits with the frailest ant that acts as host.

The only times I have known a beetle to eat anything was when I opened a nest of *Iridomyrmex gracilis* at Upwey and found *striatipennis* with a larva in its mandibles. I kept this specimen alive in a box with several well-fed larvæ, and one of the latter disappeared on the second day.

Apparently they cannot smell when they are tightly shut up, for if you blow smoke on them then they make no sign whatever; but if they are resting, as they very often do, with just the tip of the antennæ showing, and you blow smoke on them, they immediately become agitated. This may demonstrate that the olfactory nerves are situated in the antennæ, or it may be that it allows the smell to percolate down to some other part of the body; but I consider the former the more likely.

The only species I have known to fly is *strigicollis*. I was trying the effect of smoke on one of these when, to my surprise, it suddenly and very quickly spread its wings and flew a few inches in the air, when I knocked it down again. The only specimen of *E. glabra* I have taken was from a stump, where it had apparently just landed, as it had its wings protruding from beneath the elytra.